

**Claims**

1. A microfluidic system comprising first and second fluid supply sources, the first and second supply sources supplying first and second microfluidic reactors via an upstream channel, the first and second reactors each having at least one downstream channel, wherein for at least one reactor, the resistance of each of its upstream channels is higher than the resistance of the downstream channel or channels.
2. A microfluidic system according to claim 1 or 2 wherein, there are at least 1000 microfluidic reactors, each having an upstream channel from the first and second fluid supply streams, and a downstream channel.
3. A microfluidic system according to claim 3, wherein there are at least 50,000 microfluidic reactors, each having an upstream channel from the first and second fluid supply streams, and a downstream channel.
4. A microfluidic system according to any preceding claim, wherein the resistance of the upstream channels is preferably at least 10 times larger than the resistance of the downstream channels.
5. A microfluidic system according to any preceding claim, wherein the resistance of the upstream channels is preferably at least 100 times larger than the resistance of the down stream channels.

6. A microfluidic system according to any preceding claim, wherein the microfluidic reactors are all identical.
7. A microfluidic system, according to any preceding claim, wherein the resistance of the upstream channels of substantially all the reactors is higher than the resistance of the down stream channel or channels.
8. A process for preparing a two phase composition using a microfluidic system according to any preceding claim, wherein for at least one reactor one upstream channel becomes a continuous phase and one upstream channel becomes a dispersed phase in a downstream channel.
9. Process according to claim 8, which is an oil and water containing composition.
10. Process according to claim 9, wherein the oil and water containing composition is selected from the group comprising food products and personal care products.
11. Process according to claim 10, wherein the food products are selected from the group comprising sauces, dressings, spreadable emulsions, fresh cheese, cream cheese and mayonnaise.
12. Process according to claim 10, wherein the personal care products are selected from the group comprising skin cream, shampoo, liquid soap.
13. Process for preparing a composition using a microfluidic system according to any one of claims 1-7, wherein the two

fluid sources have a viscosity ratio of at least 5, when measured at  $1\text{s}^{-1}$  at  $25^{\circ}\text{C}$ .

14. Food product or personal care product obtainable by a process wherein a microfluidic system according to any of claims 1-7 is used.